

IN THE CLAIMS:

1. (Currently Amended) A roofing or siding system having an average resulting reflectivity of ~~at least about 45%~~ about 45-99% comprising an adhering surface on which a plurality of granules are at least partially secured thereto, said granules covering over about 95% of said adhering surface, said granules having an average reflectivity of ~~at least about 55%~~ about 55-99.9%,
5 ~~and an average hardness of over about 3~~ at least about 4 Moh's, an opacity of at least about 55%, and
an average porosity of less than about 20%, wherein at least a plurality of said granules include an
aluminum compound selected from the group consisting of aluminum oxide, aluminum oxalate,
aluminum nitride, aluminum phosphate, and mixtures thereof, said aluminum compound content at
least about 15 weight percent.

Claims 2-7 (Canceled).

8. (Currently Amended) The roofing and/or siding system as defined in claim 5 1, wherein said granules have an average opacity of at least about 60%.

Claim 9 (Canceled).

10. (Currently Amended) The roofing and/or siding system as defined in claim 9 1, wherein said granules have an average porosity of about 0-15%.

11. (Previously Presented) The roofing and/or siding system as defined in claim 8,

wherein said granules have an average porosity of about 0-15%.

Claim 12 (canceled).

13. (Currently Amended) The roofing and/or siding system as defined in claim [12] 1, wherein at least a plurality of said granules include a majority weight percent of aluminum oxide.

14. (Currently Amended) The roofing and/or siding system as defined in claim 11, wherein at least a plurality of said granules include a majority weight percent of aluminum oxide.

15. (Previously Presented) The roofing and/or siding system as defined in claim 1, wherein at least two particle size distributions of granules are at least partially embedded in said adhering surface.

16. (Previously Presented) The roofing and/or siding system as defined in claim 14, wherein at least two particle size distributions of granules are at least partially embedded in said adhering surface.

Claim 17 (Canceled).

18. (Currently Amended) The roofing and/or siding system as defined in claim ~~17~~ 1, wherein said granules cover over about 98% of said adhering surface.

19. (Previously Presented) The roofing and/or siding system as defined in claim 16, wherein said granules cover over 98% of said adhering surface.

20. (Previously Presented) The roofing and/or siding system as defined in claim 1, wherein said adhering surface includes an asphalt and/or bitumen surface, a plurality of said granules being at least partially embedded in said asphalt and/or bitumen surface.

21. (Previously Presented) The roofing and/or siding system as defined in claim 19, wherein said adhering surface includes an asphalt and/or bitumen surface, a plurality of said granules being at least partially embedded in said asphalt and/or bitumen surface.

22. (Previously Presented) The roofing and/or siding system as defined in claim 1, wherein said adhering surface includes a foam surface, a plurality of said granules being at least partially embedded in said foam surface.

23. (Previously Presented) The roofing and/or siding system as defined in claim 19, wherein said adhering surface includes a foam surface, a plurality of said granules being at least partially embedded in said foam surface.

24. (Previously Presented) The roofing and/or siding system as defined in claim 1, wherein said adhering surface includes an adhesive surface.

25. (Previously Presented) The roofing and/or siding system as defined in claim 19, wherein said adhering surface includes an adhesive surface.

26. (Currently Amended) A highly reflective granule for use on a roofing and/or siding system to at least partially coat and provide a highly reflective, weather resistant surface coating on the roofing and/or siding system, said granule having a reflectivity of at least about 55%, a hardness of ~~over about 3~~ at least about 4 Moh's, a porosity of less than about 20%, an opacity of at least about 55%, a silicon material, and an aluminum compound selected from the group consisting of aluminum oxide, aluminum oxalate, aluminum nitride, aluminum phosphate, and mixtures thereof, aluminum
5 content of at least about 10 weight percent said aluminum compound including aluminum oxide, said aluminum oxide constituting a majority weight percent of said granule, a ratio of said aluminum compound content to said silicon material content being about 2-50000:1

27. (Previously Presented) The highly reflective granule as defined in claim 26, wherein said reflectivity is about 60-99%.

Claims 28-29 (Canceled).

30. (Previously Presented) The highly reflective granule as defined in claim 26, wherein said opacity is at least about 60%.

31. (Currently Amended) The highly reflective granule as defined in claim ~~29~~ 27, wherein

said opacity is at least about 60%.

32. (Previously Presented) The highly reflective granule as defined in claim 26, wherein said porosity is about 0-15%.

33. (Previously Presented) The highly reflective granule as defined in claim 31, wherein said porosity is about 0-15%.

Claims 34-38 (Canceled).

39. (Previously Presented) The highly reflective granule as defined in claim 26, wherein said surface includes an asphalt and/or bitumen surface.

40. (Currently Amended) The highly reflective granule as defined in claim ~~38~~ 33, wherein said surface includes an asphalt and/or bitumen surface.

41. (Previously Presented) The highly reflective granule as defined in claim 26, wherein said surface includes a foam surface.

42. (Currently Amended) The highly reflective granule as defined in claim ~~38~~ 33, wherein said surface includes a foam surface.

43. (Previously Presented) The highly reflective granule as defined in claim 26, wherein said surface includes an adhesive surface.

44. (Currently Amended) The highly reflective granule as defined in claim ~~38~~ 33, wherein said surface includes an adhesive surface.

Claims 45-50 (canceled).

51. (Currently Amended) A roof system comprising a roof substrate at least partially coated with granules to obtain an average resulting reflectivity of at least about 45%, said granules having at least two different sizes wherein a first size of granules has an average particle size that is greater by at least about a ratio of 3:1 to an average particle size of a second size of granules, said
5 granules having an average reflectivity of at least about 55% and an average hardness of over about 3 Moh's, said granules covering over about 95% of said roof substrate, wherein at least a plurality of said granules include an aluminum compound selected from the group consisting of aluminum oxide, aluminum oxalate, aluminum nitride, aluminum phosphate, and mixtures thereof, said
aluminum compound content at least about 15 weight percent.

Claims 52-55 (Canceled).

56. (New) A roofing or siding system having an average resulting reflectivity of about 50-95% comprising an adhering surface on which a plurality of granules are at least partially secured

thereto, said adhering surface including asphalt, bitumen, foam, adhesive and combinations thereof,
a plurality of said granules being at least partially embedded in said adhering surface, said granules
5 covering over about 98% of said adhering surface, said granules having an average reflectivity of at
least about 60-99.9% an average hardness of over about 4 Moh's, an average opacity of at least about
60%, and an average porosity of about 0-15%, said granules covering over about 95% of said
adhering surface, wherein at least a plurality of said granules include silica and at least about 15%
alumina, and a content ratio of said alumina to said silica of about 2-50000:1, a plurality of said
10 granules include:

Al ₂ O ₃	at least about 45 weight percent
SiO ₂	up to about 54 weight percent
Fe ₂ O ₃	up to about 0.5 weight percent
CaO	up to about 0.1 weight percent
15 MgO	up to about 0.1 weight percent
TiO ₂	up to about 0.8 weight percent
Na ₂ O	up to about 0.05 weight percent
K ₂ O	up to about 0.03 weight percent.

57. (New) The roof or siding system as defined in claim 56, including the use of at least
two different sizes of granules, a first size of granules having an average particle size that is greater
than an average particle size of a second size of granules and a size ratio of said first size of granules
having an average particle size to an average particle size of a second size of granules is at least
5 about 1.3:1.

58. (New) A roofing or siding system having an average resulting reflectivity of about
50-95% comprising an adhering surface on which a plurality of granules are at least partially secured
thereto, said adhering surface including asphalt, bitumen, foam, adhesive and combinations thereof,
a plurality of said granules being at least partially embedded in said adhering surface, said granules

5 covering over about 98% of said adhering surface, said granules having an average reflectivity of at least about 60-99.9% an average hardness of over about 4 Moh's, an average opacity of at least about 60%, and an average porosity of about 0-15%, said granules covering over about 95% of said adhering surface, wherein at least a plurality of said granules include silica and at least about 15% alumina, and a content ratio of said alumina to said silica of about 2-50000:1, a plurality of said
10 granules include:

	Al ₂ O ₃	about 45 - 74 weight percent
	SiO ₂	about 20 - 52 weight percent
	Fe ₂ O ₃	about 0.3 - 1.3 weight percent
	CaO	up to about 0.1 weight percent
15	MgO	up to about 0.1 weight percent
	TiO ₂	up to about 3 weight percent
	Na ₂ O + K ₂ O	up to about 0.65 weight percent

59. (New) The roof or siding system as defined in claim 58, including the use of at least two different sizes of granules, a first size of granules having an average particle size that is greater than an average particle size of a second size of granules and a size ratio of said first size of granules having an average particle size to an average particle size of a second size of granules is at least
5 about 1.3:1.

60. (New) A roofing or siding system having an average resulting reflectivity of about 50-95% comprising an adhering surface on which a plurality of granules are at least partially secured thereto, said adhering surface including asphalt, bitumen, foam, adhesive and combinations thereof, a plurality of said granules being at least partially embedded in said adhering surface, said granules
5 covering over about 98% of said adhering surface, said granules having an average reflectivity of at least about 60-99.9% an average hardness of over about 4 Moh's, an average opacity of at least about

60%, and an average porosity of about 0-15%, said granules covering over about 95% of said adhering surface, wherein at least a plurality of said granules include silica and at least about 15% alumina, and a content ratio of said alumina to said silica of about 2-50000:1, a plurality of said granules include:

Al_2O_3	about 45 - 74 weight percent
SiO_2	about 20 - 52 weight percent
Fe_2O_3	about 0.3 - 1.3 weight percent
CaO	up to about 0.1 weight percent
MgO	up to about 0.1 weight percent
TiO_2	up to about 3 weight percent
$\text{Na}_2\text{O} + \text{K}_2\text{O}$	up to about 0.65 weight percent

61. (New) The roof or siding system as defined in claim 60, including the use of at least two different sizes of granules, a first size of granules having an average particle size that is greater than an average particle size of a second size of granules and a size ratio of said first size of granules having an average particle size to an average particle size of a second size of granules is at least about 1.3:1.

62. (New) A roofing or siding system having an average resulting reflectivity of about 50-95% comprising an adhering surface on which a plurality of granules are at least partially secured thereto, said adhering surface including asphalt, bitumen, foam, adhesive and combinations thereof, a plurality of said granules being at least partially embedded in said adhering surface, said granules covering over about 98% of said adhering surface, said granules having an average reflectivity of at least about 60-99.9% an average hardness of over about 4 Moh's, an average opacity of at least about 60%, and an average porosity of about 0-15%, said granules covering over about 95% of said adhering surface, wherein at least a plurality of said granules include silica and at least about 15%

alumina, and a content ratio of said alumina to said silica of about 2-50000:1, a plurality of said
10 granules include crushed porcelain.

63. (New) The roof or siding system as defined in claim 62, including the use of at least
two different sizes of granules, a first size of granules having an average particle size that is greater
than an average particle size of a second size of granules and a size ratio of said first size of granules
having an average particle size to an average particle size of a second size of granules is at least
5 about 1.3:1.